THE REORGANIZATION OF THE ELECTRIC POWER INDUSTRY INTO REGIONAL SYSTEMS

BY

GORDON CARROLL LOSEE

B.S., University of Illinois, 1931

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AN ABSTRACT OF A THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
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ECONOMICS IN THE GRADUATE SCHOOL
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THE REORGANIZATION OF THE ELECTRIC POWER INDUSTRY INTO REGIONAL SYSTEMS

The purpose of this study is twofold: (1) First, and primarily, to examine the extent of, or progress of, integration of the electric power industry into regional systems (both physically and financially) since 1935, as shown under the following: (a) Securities Act of 1933; (b) Five years of administration of the Public Utility Holding Company Act of 1935 Title I, Section 11, primarily); and as effected by (c) Miscellaneous factors contributing to simplification, most of which have taken place since 1930 and have continued to the present; (2) Second, to discuss and attempt to analyze the major problems of integration of the electric power industry into regional systems under (a) general economic problems (b) legal and institutional problems, particularly those involved in the correlation or coordination of existing private, Federal, municipal, and private industrial power facilities; and (c) financial problems. Briefly, Part I of this study is descriptive in nature, uses the inductive method, and attempts to describe the progress since August 26, 1935, toward financial simplification and physical integration. These data have been taken from the filings with the S. E. C. of Registration Statements under both the Securities Act of 1933 and the Public Utility Holding Company Act of 1935, as well as from the standard financial manuals and services. Chapter I indicates the situation with respect to the financial and physical conditions that existed prior to August 26, 1935 (the date on which the Public Utility Holding Company Act became a law); Chapter II portrays the financial simplification since the above date through January 1, 1940; Chapter III indicates the physical integration for the same period. The data used in this study are those filed as a matter of public record with the Securities and Exchange Commission and with the Federal Power Commission, as well as with the standard financial manuals.

Part II of this study, using the deductive method, is an analytical and theoretical examination of the major under-

lying problems involved. Chapter IV deals with the general economic problems; Chapter V with the legal and institutional problems, particularly those legal problems arising under Section 11 of the Public Utility Holding Company Act of 1935, as well as with the coordination of municipal electric projects, privately owned steam and hydro systems, Federal hydro, and private industrial power projects. This chapter also presents briefly the whole economic problem of physical integration of generation, transmission, and distribution of electricity within the institutional framework. Chapter VI deals with an analysis of some of the major financial problems incidental to financial simplification, the objectives to be attained, the underlying difficulties of simplification, and the possible methods of financial simplification. Chapter VII presents the summary and conclusions derived as a result of this study.

Three groups of factors, as discussed in Chapter I, which have made for financial simplification and physical integration from 1929 to the present, are as follows: (1) The Securities Act of 1933; (2) The Public Utility Holding Company Act of 1935, particularly Section 11, which has been the most important single factor; and (3) Miscellaneous Factors which have contributed to Simplification—which group includes (a) taxation (b) bankruptcy of subsidiary electric companies and parent companies (c) depression, or loss of business (d) rate reductions, or further loss of revenue (e) inability to refinance (f) the overcapitalized condition of operating companies (g) new state laws forcing electric operating and holding companies to divulge more information as to financial and accounting practices (h) court and commission activity since *Smith v. Illinois* (*1930*), which has disallowed the padding of intercorporate expenses through use of holding companies and has placed the burden of proof upon the public utility company to justify such expenses, and (i) the ease of liquidating charters of subsidiaries—all of which have brought about the elimination of superfluous holding companies and have made for greater corporate simplification since 1929.

Many background factors have, however, given rise to a condition of extreme scatteration of operating electric utility properties and to the use of complex and confusing holding company structures. An excellent summary of these factors has been published in the well-known Federal Trade Commission and Splawn Reports. These reports have covered very exhaustively the most important uses and abuses of equity financing, through the use of pyramiding and substitution of securities accomplished through the holding company device.

The situation prior to August 26, 1935 (when the Public Utility Act of 1935 became a law) is illustrated in Chapter I by Federal Power Commission maps. One map of the Service Areas of United States by holding company systems clearly illustrates the extreme scatteration of operating properties controlled through the holding company device. A second map of Generation and Transmission Facilities reveals the great lack of interconnection and integration which existed prior to 1935. Following these maps and three others, the writer has prepared charts to illustrate the same condition by showing the situation in Groups I and II, or the 31 largest holding company systems in the electric and gas industry as of the above date. This series of charts covers about 83.5 per cent of the electric power industry, the data being taken from the standard financial manuals, as well as F. P. C. reports and releases and S. E. C. reports and releases.

The outstanding characteristic to be noted in these 1935 charts is the tendency of most of the large electrical and gas holding companies to bring together under the influence of a single top holding company a very large number of operating units, heterogeneously distributed in a dozen of more states. It is hardly conceivable that physical interconnection, with its potential regional and other functional advantages, can be realized under this indiscriminate scatteration of ownership control over such large non-integrated areas. Hence, Chapter I sets forth the situation of extreme scatteration of operating electric properties which prevailed in August, 1935, as well as factors which have made for financial simplification, the reduction of corporate complexities, and the elimination

of unnecessary holding companies, partial realization of which has taken place since that time.

In Chapter II, the actual financial simplification which has taken place during the past five years is summarized. This includes both the actual financial operations which have taken place within the electric and gas industry (as reported to the S. E. C.), and the tentative and approved integration plans as filed up through January 1, 1940. The actual financing of electric and gas holding and operating utility companies from 1935 through 1939 complised the following: A total amount of $4,958,127,181 par value of new securities was offered either privately or publicly. Of this total amount of financing, as tabulated by the S. E. C., $4,026,382,951 represents funds raised through mortgage bond issues; $568,650,095 represents funds raised through the sale of debentures; $129,721,000 represents funds raised through the sale of notes; $224,402,400 represents funds raised through the sale of preferred stock (stated value); and $8,970,735 represents funds raised through the sale of common stock, exclusive of the common stock issued for warrants, rights, and issues to accompany convertible issues. Mortgage bond issues sold publicly, which constitute by far the most important type of security issued by utility companies, represented $910,658,000 in 1935; $1,194,841,951 in 1936; $521,168,000 in 1937; $584,-057,000 in 1938; and $469,727,000 in 1939. Mortgage bond issues sold privately represented $53,500,000 in 1935; $41,-550,000 in 1936; $12,876,000 in 1937; $96,650,000 in 1938 and $141,355,000 in 1939. Securities other than bonds represented $84,528,400 in 1935; $176,759,600 in 1936; $130,260,635 in 1937; $272,245,995 in 1938 and $267,949,600 in 1939. It is significant to note the ever-increasing amount of new issues which have been sold privately to insurance companies and banks, as well as the larger increase, particularly in 1938 and 1939, in the amount of new capital raised by issuance of securities other than bonds.

Moreover, according to the S. E. C.'s compilation, the average bond yield was 3.83% for 1935; 3.58% for 1936; 3.61% for 1937; 3.49% for 1938; and 3.45% for 1939. These

rates represent the average cost of borrowed capital, taking into account the risks for the entire utility industry; the charts show also a break-down by months, weighted by volume of sales. Since most of the bonds refunded were 5 to 5½% interest-bearing securities, the figures indicate considerable savings in the fixed charges for the issuing public utility and gas companies. In most cases, more than one issue was refunded during the refinancing operations by parent companies refunding either their own issues or by refunding subsidiary issues; yet this does not constitute financial simplification in the sense that any less complexity exists, but merely represents the taking advantage of lower interest in the capital market. Further, this study indicates that the funds raised by the private and public sale of securities from 1935 through 1939 were used as follows: (1) Financing for Refunding, and (2) Financing for Integration Purposes. Therefore, the actual purposes to which these funds were put, according to filed registration statements, have been tabulated in this study in order to indicate the financial simplification which has taken place.

Hence, to summarize all four groups, I, II, III, IV, of the Grand Total Principal Amount of New Issues of $5,339,408,-002, concerning which it was possible to find registered information for this study, $4,889,849,004 represents the total par value of refunded issues, $3,826,380,930 representing the refunding of their own issues by registered parent companies; $715,192,835 representing refunding by parent companies of issues of their subsidiaries; and $348,275,239 representing the funding of bank notes and bank loans into long-term bonds or stocks. When taken together with the net cash adjustments,—additions to or deductions from treasury cash of the issuing utility corporations—amounting to +$64,595,536, the total refunding within existing utility and gas systems is found to have been $4,889,849,004. Coupon rates, as well as the volume of securities issued at these rates and the average annual yield of these issues, are shown by charts.

Financing for Integration is indicated in the second part of this tabulated material, which in reality is a separate table

presenting information as to: (a) the number of subsidiary companies which were merged or dissolved in connection with the refunding or refinancing operations, as well as those which were merged but not yet dissolved, even though their facilities were absorbed into the system; and those subsidiaries which were merged or dissolved without new public financing. (b) funds used for integration—that is, the additions or betterments acquired with new capital, which, according to the registered information filed by these companies, were used to round-out the existing generating, transmission, and distribution facilities of the electric utility and gas systems under the present holding company systems. In some instances these funds were used for acquisition of whole subsidiary electric generating systems, distribution systems, or transmission systems; in other instances, the funds were used to expand existing facilities. The former figure (a) above, constitutes a grand total for Groups I, II, III, IV, of 656 companies consolidated during the five-year period ending January 1, 1940, of which number 485 were dissolved and 171 were not dissolved. The latter figure (b) above, constitutes a grand total of $403,909,297 used for integration or the interconnection and rounding-out of facilities in Groups I, II, III, IV. This summary is further broken down by these four groups in detail in this chapter.

Most of the subsidiary electric companies, as well as the non-utility subsidiaries which were dissolved after being consolidated or merged during the past five years, are noted on the Charts for Groups I and II in Chapter I. The new companies acquired by parent companies during this same five-year period, which were not dissolved by January 1, 1940, even though their facilities were absorbed, are indicated on the Charts of Groups I and II in Chapter III. The following summary of the 38 simplification plans, integration plans, or merger plans, as the case may be, are the ones which have been significant and have made major changes in the intercorporate relationship within the five years ending January 1, 1940. The changes herein briefly described help to explain the major modifications which have taken place between the

August 26, 1935 Charts found in Chapter I, and the January 1, 1940 Charts found in Chapter III, which represent about 85% of the registered electric utility systems in America.

The above mentioned 38 simplification plans may be summarized into four groups as follows: (1) Major Tentative Integration Plans; (there are 8 of these which have been filed with the S. E. C., as such under Section 11 of the Public Utility Act of 1935) (2) Plans to Dissolve or Eliminate Top or Sub-Holding Companies; (there are 14 of these, some of which were filed with the S. E. C. under Section 11 of the Public Utility Holding Company Act of 1935) (3) Recapitalization Plans; (there are 4 of these, all of which have been filed with S. E. C. under Section 11 of the Public Utility Holding Company Act) (4) Minor Merger or Consolidation Plans; (there are 12 of these, most of which were not filed with the S. E. C., but instead with various state commissions). The details of particular plans, as to their specific provisions and effects upon the holding companies and subsidiaries involved, may be ascertained by examination of them in Chapter II.

Chapter III, which deals with physical integration, may be summarized by stating that it illustrates in chart form with brief descriptions the interconnected groups of operating companies which existed in the electric power industry as of January 1, 1940. In order to facilitate the descriptive presentation of the Physical Integration which existed as of January 1, 1940, and has taken place since August 26, 1935, the major power systems as set forth in the National Power Survey, Power Series No. 2 issued by the Federal Power Commission in 1936, have been divided into four main groups in this study as follows: Group I, which includes the principal holding company systems; Group II, which includes the important systems in which the principal company is primarily an operating rather than a holding company, the subsidiaries of which are relatively small, and all the companies of which are operated as a unit in contiguous territory; Group III, which includes important operating companies not associated with a holding company, and likewise operated as a unit in contitgu-

ous territory; and Group IV, which includes the less important holding company systems.

The systems classified as Groups I and II are those reported on in detail in this study. The systems falling in Groups III and IV are treated in a summary manner, since the two former groups hold about 90 per cent of the total assets reported to the Federal Power Commission. The four groups represent the Class A and Class B utilities that operate in the United States and report on Uniform System of Accounts to the Federal Power Commission. Such Class A and Class B utilities, which report annually to the Federal Power Commission since 1937, now constitute, according to that body, more than 90 per cent of the electric utility industry on the basis of assets.

The information and data presented in respect to each of the principal utility holding company systems (Groups I and II) include the following:

(a) A brief descriptive summary indicating the nature and extent of electric operations and the mediums through which the operating companies are controlled.
(b) A consolidated balance sheet (In most cases for both Dec. 31, 1935, and Dec. 31, 1938).
(c) Selected data on important subsidiaries for the years 1935 and 1938.
(d) A physical corporate relationship chart based upon the most recent information as of January 1, 1940.
(e) A map showing the geographical location of electric and/or gas subsidiaries.

The corporate relationship charts indicate the physical integration and the interconnections of companies composing each principal utility holding company system. Such charts also show in respect to each system:

(a) Whether it is an operating or a holding company.
(b) With respect to operating companies, whether it is an electric or non-electric company.
(c) Its relative size.
(d) Whether its territory is contiguous to or interconnected with that of any other company in the same system.

Upon closer examination it becomes apparent that, after comparing the charts in this chapter with those in Chapter I, and after examining the data on mergers and dissolutions in connection with financial simplification found in Chapter II, most of the physical integration may be summarized as follows:

(1) Most of it is within existing holding company systems, that is, it is concerned primarily with interconnections and pooling of generation and of transmission facilities within, rather than between company systems. Hence, with few exceptions, most of the interconnection and physical integration to date has been within existing systems, yet more than one "integrated system" in scattered parts of the country still remain. The total number of operating units, however, is smaller and many non-utility units have been disposed of in one way or another. Thus these system charts describe the present situation of physical integration very adequately and clearly.

(2) Most of the physical integration or geographical interconnection has been voluntary in nature; hence it is extremely difficult to determine whether it may have resulted because of the laws and conditions indicated in Chapter I under "Miscellaneous Factors Contributing to Simplification" or whether it has been effected because of Section 11 of the Holding Company Act of 1935.

(3) In Group II, which includes those systems which are "primarily operating companies and only incidentally holding companies", appear a few examples of some systems which are interconnected physically within the same system, so far as the generating and transmission facilities are concerned, but wherein control of the operating electric subsidiaries is not maintained through voting stock control but rather through common management.

(4) Also in Group II another type of system interconnection is set up through common power contracts, which run for long terms and tend to integrate the respective generating and transmission facilities. Neither common management nor voting control of subsidiaries is resorted to, but rather

the same effect, so far as physical integration within systems is concerned, is brought about through long-term power contracts. Detailed information with respect to companies included within particular holding company systems, the corporate relationship which exists, and the physical integration which prevailed as of January 1, 1940, as well as other important relevant data dealing with geographical integration as it has progressed since 1935 within these systems, may be obtained by reference to the charts, maps, and accompanying data for these holding company systems presented in Chapter II.

Part II of this study deals with an analysis of the principles and problems of integration, and includes Chapters IV, V, and VI. Chapter IV, which treats of the general economic problems involved in integration, may next be summarized. Title I of the Public Utility Holding Company Act provides for the reorganization of the electric power industry into regional systems, and for the limitation of the operations of each public utility holding company system to a single integrated public utility system. The Act is very vague and indeterminate in its definition of what constitutes an integrated utility system, other than the provision that such system must be "physically interconnected or capable of physical interconnection" and not so large that it cannot be operated independently without the loss of substantial economies, that it be located in a single state or adjoining states, and not so large that continued control would impair the advantages of localized management, efficient operation, and effective regulation. Title II provides in a most limited manner for the division of the country into regional districts for the generation, transmission, and sale of electricity in interstate commerce. Further, it provides for voluntary interconnection and coordination of facilities; for temporary connections and emergency interconnection which must be in the public interest; and for the promotion of regional districts, all of which provisions are highly qualified.

Three main groups of considerations determine the size of an integrated region under our prevailing public policy,

which provides for the widest possible use of electricity at the lowest cost to all: (1) The location of the major hydro and steam generating facilities, which constitute a nucleus for setting up the outer boundaries of an integrated region; (2) The distance that it is economically feasible to transmit electricity from generation points to load centers; involving the comparison of cheap electricity generated at a government hydro plant with its cheap capital and multiple utilities created (to which part of the costs may be allocated) plus the cost of transmission of such hydro power, with the cost of transportation of coal, natural gas, and petroleum to a steam generating plant; (3) The availability of suitable electricity markets or load-centers which will consume the electricity at a given rate policy. Recent studies of this problem of comparative costs indicate that the "margin of cultivation" of large hydro plants may be pushed out even further without their being considered uneconomical investments; on the contrary, recent reductions in the cost of transporting petroleum by pipe-line have made the use of Diesel plants more feasible.

The administrative problem of integration of the electric power industry into regional systems is further made difficult by the fact that certain functions are inherently local while others are inherently central by nature. The general test to be applied is the determination of whether close contact may be maintained with local conditions of that regional area within which such system operates, which gives to the central organization vital knowledge and appreciation of the intimate operating details. Beyond that size, the advantages of an integrated regional system disappear and the human element, delays, unwieldiness due to size, duplication, and other wastes indicate that the size of the regional system is too large.

The most important economic advantages of regional integration include the following: steadier service or more continuous service in case of emergencies such as floods, lightning, sleet, wars, and other events; the reduction of the necessary operating reserves, thus diminishing the investment in obsolete stand-by equipment; the base-loading of the most

efficient hydro and steam plants throughout the regional system; full development of water power resources within a region, resulting in conservation of petroleum, natural gas, and coal for other uses; large-scale generation in the most economic sized central plants; more rational handling of the peak problem through the proper coordination of hydro and steam generating facilities; reduction in the necessary costs of production, which in turn results in lower over-all costs of production because of improved plant factor, improved utilization factor, and the minimizing of energy losses; more power made available at lower rates, even in consumption areas where such power was not available before; feasible decentralization of industry, thus making cheap power available in the desired places where the natural resources, labor supply, and other advantages already exist; piecemeal additions and abandonments of generating facilities made possible as load changes take place, thus maintaining service and taking advantage of improved technique; responsibility fixed in certain individuals for the rendering of effective service through regionally integrated system management, which permits selection of the most efficient generating units, handling of daily peak loads, and adjustment of total installed capacity to changes in load; more adequate handling of the problem of equalizing electricity supply in deficit and surplus areas.

The marketing problems or problems of distribution of electricity are considered economic in nature. These problems must also be considered in the light of public policy, which very broadly embraces the idea of promoting the widest possible use of electricity at the lowest possible costs throughout the widest area. The distribution problems are very different under such public policy from what they would be under the usual policy in the past of charging high rates, charging discriminatory rates, restricting output, and monopoly pricing. The preservation of the sovereignty of states' rights is no doubt the reason why some writers advocate distribution by state lines. The best known technique recognizes distribution to be primarily local in nature as evidenced by R. E. A. Cooperatives, T. V. A. Cooperatives, and German and English

distribution organizations. Adequate distribution is the ultimate goal of large-scale efficient generation and transmission of electric power, which would be ridiculous without proper distribution outlets. Furthermore, the ultimate potential market for electricity is very difficult to predict for regional systems, particularly since there are so many unknown technical factors and such great possibilities of increased consumption and diversity of uses of electricity under promotional rate policies. Fundamentally, the distribution network must be flexible in organization and capable of easy expansion and growth.

The majority of distribution systems in America must be rebuilt and enlarged to handle present and future loads, since a great many of them are technically inadequate to handle large loads at the present time. Cities and populations have grown, yet our distribution facilities have developed in a crazy-quilt manner with diverse voltages, frequencies, transformer capacities, capacitors, cables, and other technical dissimilarities. There are great possibilities of improvement of distribution facilities through underground installations, larger and better transformers, network distribution, coordination with other utility facilities, and other improvements. Disribution facilities must be improved to handle the high-voltage electric power received at substations from integrated generation centers, or increased use of electricity will be postponed.

Chapter V, dealing with the legal and institutional problems involved under the reorganization of the electric power industry into regional systems, may next be summarized briefly. Several legal and institutional problems exist which make it difficult to reorganize the electric power industry into regional systems. First, the constitutionality of Section 11 of the Act is questionable. Second, the existing legal and institutional framework, within which system of "private law" and new laws and organizations this policy must be worked out, involves very different philosophies and outlook so far as private utility systems, Federal power projects, municipal power plants, and private industrial power plants

are concerned. This latter situation presents a major difficulty and one which cannot be solved by the Public Utility Act of 1935. Hence, certain compromise device solutions are being worked out to solve this difficulty, some of which have met with considerable success.

Some of the more important legal difficulties underlying the administration of Section 11 of the Act are: the question as to the constitutionality of Section 11 (b) under which the Commission has issued "show cause" orders and is at present holding hearings on compulsory integration plans; the administrative difficulties involved in getting the Commission appointed as trustee to administer such plans; the whole matter of administrative interpretation of the "ABC Standards," or exemptions under Section 11 (b) (1) of the Act; the difficulty of interpretation of the meaning of the "adjoining states" clause, which subsection would permit a holding company system to control more than one integrated region system; the hypothetical difficulty of "buying high" if the government does take it upon itself directly to set up integrated systems—with the subsequent possibility of "selling low" in order to make other holding companies take over and coordinate scattered operating properties into regional systems; the questionable legality of forcing one system to "sell" and then forcing another system to "buy" (the latter is even more questionable) these properties when they both refuse to do so; the questionable results which would be obtained through the use of "liquidating trustees," investment trusts, or the use of the round-table technique, when neither party is willing to conform or to cooperate in creating sound regional systems; the questionable legality of whether the Commission can fix valuations at which property transfers can be made, and also whether it can reduce the amount of securities to equal such valuations; and finally, there is the problem caused by the lack of explicitness of the Act, which, even if it were clear-cut in its provisions relating to regional integration, subjects the resulting action to judicial review. However, such court review might have been obviated

under a clear-cut law and the Commission permitted to proceed with compulsory integration. Under the present Act there are no such explicit provisions.

The second and more fundamental difficulty is the problem of fitting into our capitalistic framework of "private law," as well as new forms of organization and evolution of law, the following private and publicly-owned facilities: private steam systems and private hydro-electric system facilities; Federal hydro projects (Boulder Dam, Bonneville Project, Grand Coulee, Fort Peck, Tennessee Valley Authority) Rural Electrification Administration, Public Works Administration Power Projects, and other public power projects; local municipal plants; and private industrial power plants. The great differences in philosophy and outlook between public and private planning of electricity is exemplified in the above four groups, each operating in a separate institutional framework with different purposes and philosophies, make this problem of the reorganization of the entire electric power industry and its facilities almost a hopeless task. This conclusion seems to be true since we have so great a variety of establishments engaged in the generation, transmission, and distribution of electricity which have grown up in haphazard fashion to serve particular needs, each in its own way. Naturally, they differ in respect to their legal origin, special privileges, scope, outlook, organization, duties, purposes, motivations, and status. The plan of regional reorganization proposes to integrate these diverse facilities into compact regional operating units, to give them a new motivation, a central administration, a new social status, and to cause them to operate according to a common public purpose. Therefore, the real institutional problem involved consists in the breaking down of the numerous vested interests that prevent unification and integration and the establishing of a new form of organization with new motivations. It is readily apparent that such regional integration, when the diverse vested interests are considered, presents an almost hopeless task under present institutional patterns.

Furthermore, the "extra-legal" difficulties or 'private controls' make the problem of integration even more difficult and complicated. The latter group includes the ideas and patterns of thought embodied in our customs, habits, traditions, advertising, associations, editorials and propaganda of all types which oppose governmental participation, governmental competition, and coordination or integration of the electric power industry into sound regional systems. However, new propaganda has become effective, as shown by recent experiences with newer forms of organization and devices recently introduced.

This objective of reorganizing the electric power industry into regional systems is not entirely hopeless of attainment, however, in spite of the fact that the Act deals only with private utility systems and does not extend into the other areas mentioned; it does not control the Federal projects, the municipal plants, R. E. A. Cooperatives, and private industrial power plants, and, besides, does not touch the laws of states, the protection of property rights under the Constitution, and the legal and institutional framework generally. Certain compromise devices are being used with considerable success, some of which operate within our general legal and institutional framework to effect desired results, while others create new organizations under new laws to facilitate regional integration. These devices include the following: the setting up of Rural Electrification Cooperatives which render service in rural areas and which represent a new kind of organization created by Federal law to perform the distribution function, aided through cooperation by similar state laws; the provision for both public and private representation on the original board, and the present agency relationship, of Boulder Dam Project, which have aided in the development of the cooperative use by cities, private power companies and others of generation facilities; the sale of electricity at wholesale prices to certain private utility systems by the Tennessee Valley Authority; the interchange of power with private power companies by the T. V. A.; the interchange of power between the T. V. A. and private industrial corporations such

as Aluminum Company of America; the transfer of electric properties of private power companies to the T. V. A. and cities in that area, cooperation between T. V. A. and municipalities in that area; and the coordination of Federal steam and hydro facilities in the T. V. A. area—all of which have facilitated regional integration.

The proposal of a regional grid scheme in the Pacific Northwest area, to be owned by the Federal government, would aid integration throughout a whole region; the case of the Otter Tail Power Company as decided by the Federal Power Commission, wherein discrimination between localities was removed in the wholesale distribution of electricity to several municipalities in Minnesota and South Dakota—this facilitates integration by making it desirable and feasible for cities to draw their electricity supply advantageously from a central source rather than from the operation of isolated plants; the proposal for quick purchase or condemnation proceedings through state authority and the proposed raising of debt limits or financing on revenue certificates, would aid the acquisition by municipalities of distribution facilities within regional areas; and, finally, the recent provision for a Federal National Defense Grid which would socialize only the function of transmission and thereby interconnect facilities on a regional basis, leaving the production function and the distribution function to be performed as usual by private, state, district, or cooperative units. In conclusion, the Federal War Power or National Defense may be the most effective means of bringing about integration yet tried.

While the institutional problems which hinder coordination of the various electric facilities into regional systems are no doubt the most difficult to solve in this whole matter of effecting sound regional reorganization of the entire power industry, there is hope that similar devices and other more far-reaching ones will be devised in the future. The situation looks rather pessimistic, but a careful review of the experience of the 1930-1940 decade shows that some progress has been made. However, this progress has not resulted from the Act. Nevertheless, the compromises and experience mentioned sup-

plement the avowed purpose of Section 11 of the Act and help to some extent to bring about coordination and regional integration, notwithstanding the great inadequacies of the Act itself.

Chapter VI, the final chapter of this study, comprises a discussion of the financial problems involved in integration of the electric power industry into regional systems and may be briefly summarized as follows: There should be two basic goals of financial simplification: (1) correspondence or coordination with physical integration and (2) adjustment of capital structure to the actual underlying operating property valuations for rate-making purposes—neither of which is specifically provided by the Act. No provision whatever for ascertaining the actual cost of such operating property for rate-making purposes, or for the issuing of securities against this base, is provided in the Act. Further, since the objectives of Section 11 are two-fold: (a) dismemberment of each utility holding company system into single integrated regional operating systems, and (b) the breaking down of concentration of control over scattered operating properties and the provision for orderly simplification of complex corporate structure and for more equitable distribution of voting power, the financial simplification and physical integration must progress together, since the securities outstanding must be related to the actual investment in the operating properties.

Until January 1, 1940, the Securities and Exchange Commission proceeded upon an informal and voluntary basis, urging the holding company systems to submit tentative integration plans in a spirit of friendly cooperation. Since such plans and voluntary readjustments of physical properties and corporate readjustments were not forthcoming, the Commission has had to resort to compulsory enforcement of such plans by issuing "show cause" orders under Section 11 (b).

Certain major problems must be settled under financial simplification before physical integration of operating properties can take place. As a matter of expediency, the Commission, acting within the framework of the Act, agrees that financial simplification should precede physical integration,

but this would not necessarily be true if the Act really contained specific provisions making for the formation of functionally sound physical operating systems. Some of the problems which must be solved as a matter of expediency in order to administer the Act include: the elimination of many preferred dividends which are in arrears; the starting of action leading to financial simplification; and the preservation of the rights and shares of various security holders and creditors. The Commission has seen fit to follow the Boyd Case doctrine, which provides for absolute priority of claims, as opposed to a theory of relative priority of claims in reorganization. Another serious weakness of the Act is the omission of any authority to ascertain actual original cost of assets for rate-making purposes or for purposes of evaluating the issuance of new securities. Thus, the Commission is compelled to rely upon the capitalization of reasonably expected earnings and to relate them to securities issued, as a matter of expediency, in the absence of a better base. Herein is to be found a serious shortcoming of the Act, making it difficult to "squeeze out the water" from new security issues.

Examination of the financial objectives of Section 11 and the related sections indicates that they are vague and indefinite; that they preserve a condition, by assuming virtue in holding companies pyramided up through two steps, which may repeat the abuses it was set up to cure. Also, it is questionable whether the holding company can be justified at all from a functional production viewpoint, since most of its uses have been provided for by mutual service companies and other means. The use of alternative institutions such as "interstate compacts" might accomplish the same regulatory results with respect to two operating companies which operate in adjoining states. The argument that holding companies perform a service for investors through diversification of risk has been disproven; most of such systems have had to take bankruptcy because of the complicated financial structures resulting from the haphazard manner in which they were pieced together.

The tabulated data in Chapter II indicate that most of the financial operations of the past five years have been mere

refunding rather than financial simplication in the true sense. This refunding has not changed the equities; total capitalization has not been changed except in a few cases; voting control has remained the same. Thus, most of the financial operations do not represent financial simplification, but rather the taking advantage of low-cost capital and the consolidation of many small issues into larger ones.

One of the most difficult problems underlying financial simplification is the detection of write-ups and other malpractices involved in the "consolidation of watered stock". Since the Act does not provide the authority to insist upon the actual original cost of operating properties as to the base for the issuance of securities, this problem is exceedingly difficult to solve. A second problem is that of eliminating the large amount of preferred dividends which are in arrears. In some cases this condition may be cleared up by recapitalization; in other cases the companies themselves can pay these arrearages, if there is no serious overcapitalization. Such arrearages must be cleared up before there can be much exchange of properties and formation of integrated regional systems under the Act. A third problem is that of scaling down of fixed charges and debt, and the thickening of equities, as advocated by Mr. Frank, Chairman of the Securities and Exchange Commission. As a matter of expediency, perhaps, this policy of relating new securities to earnings is the best approach under the present Act. This policy is in reality an example of circular reasoning, but since the Act does not provide for the filing of original cost as the basis of valuation of property, the Federal Power Commission, as a friend of the court, presented an excellent brief pleading for the original cost as a basis for rate-making. It asserted that this power was needed to administer Title II of the Act, and that the use of cost of reproduction and similar methods of appraisal had failed during the past four decades. The Act is inadequate in omitting a sound base for rate-making purposes and a basis for the issuance of security issues.

There are several suggested possible methods of financial simplification under Section 11 of the Act: exchange of securi-

ties between holding company systems; creation of new holding companies, each of which would be limited to a single integrated system; distribution of holding company assets to existing security holders, through sale or distribution in kind; the use of trusteeship of assets or "liquidating trustees"; conversion into investment companies or investment trusts; government aid in the direct buying and selling of operating properties; the government interesting investment bankers in acting as agents or "go-betweens", thus facilitating integration; and the combination of the above methods in various ways—all of which rest upon the assumption that private power interests would be willing to form integrated regional systems. Further, the methods mentioned represent "liquidation from the top down". A much sounder, simpler, and more feasible method would consist of "organization from the bottom", or the organization of regional units from the ground upward—which is not permitted under the Act.

Therefore, the Public Utility Act of 1935 does not go far enough to solve the problem of financial simplification for the following fundamental reasons:

It does not provide a sound investment base, such as actual original cost of the investment in property. This is fundamental as a basis for the issuance of new securities, as well as for purposes of rate-making, as was pointed out by the Federal Power Commission in its brief presented to the Supreme Court. In this brief the Commission pleaded for original cost as being the most sound basis for rate-making purposes and a power which must be provided before it could administer the Act. Such power must also be possessed by the Securities and Exchange Commision in order to relate security issues to a sound investment base.

It does not give any commission the power to organize regional systems from the ground up into strong systems. Instead the Act provides for simplification from the top down, with all the complexities and difficulties inherent in such a method, not to mention the impossibility of squeezing out the water from security issues and the lack of power to evaluate operating properties on the basis of the actual investment therein.

The Act, as well as the Commission, is overconcerned with the "legalistic" issues of protecting voting power, the rights

of various groups of security holders, the fairness of plans to all groups involved, and the protection of legal rights of these groups—all of which is a result of the institutional framework within which the modern corporation must operate, and which has influenced the corporation lawyers who drew up the Act. Consequently, the functional aspects of generation, transmission, and distribution of electric power in the most economical manner by private power companies are put in a position secondary to the protection of these legal rights.

The Act makes the serious mistake of admitting any functional value in holding companies as they have been used in the electric power industry. The very assumption of virtue in holding companies pyramided up through two steps is a move in the direction of the perpetuation of the present financial structural pattern. Various investigations and hearings have indicated this conclusion to be true, yet the Act compromises on the issue.

In view of recent decisions, the Commission's theory of capitalizing expected earnings is also a serious mistake, yet, as a matter of expediency, it is the only policy which can be followed, since the Act does not provide for a sounder investment base. The investor is, of course, primarily interested in earnings, but from the point of view of sound physical integration and financial simplification, the Act is weak in this omission.

The Act does not provide the investment base which is necessary in order to eliminate the property rights in watered securities. The write-ups of property values must be eliminated before there can be financial simplification in the broadest sense and the organization of regional systems "from the ground up" on a sound basis.

Some advancement has been achieved through voluntary simplification to date, but very little progress, if any, has been made toward physical integration. The operations of the Securities and Exchange Commission have been limited by the fundamental defects of the Act.

In conclusion, reorganization of the electric power industry into regional systems through Commission action seems rather hopeless because of the omission of certain essential powers from the Act. No basis for valuation for rate-making purposes is provided; no investment base for new security issues is set forth; and finally, no power to compel exchange

of properties between holding company systems is specifically provided by the Public Utility Act of 1935.

Moreover, the Act lacks explicitness on several vital issues, thus subjecting Commission action to court review following administrative decisions. Many of the sections of the Act require administrative and court interpretation, e. g., the "ABC Standards" of exemption, the "adjoining states" exemption; the section which deals with "public interest and economic necessity of properties"; the vagueness of wording in explaining what constitutes an "integrated regional system"; the general lack of standards in the Act; and the great need for administrative interpretation of many sections.

Furthermore, the institutional difficulties mentioned above make the ideal of reorganization of the entire electric power industry into sound regional systems almost hopeless of attainment. The jurisdictional limitations of the Act include only the privately owned utility systems; no control is provided for the other facilities such as municipal plants, Federal Projects, R. E. A. Cooperatives, T. V. A., and private industrial power plants; the Act does not touch the state laws governing corporations, the franchises, the certificates of public convenience and necessity, and other legal and institutional patterns. The institutional problem of unifying and integrating all of these various facilities and establishments into sound regional systems and the breaking down of vested interests which prevent such action seem almost insuperable. Yet recent experience in the 1930-1940 decade indicates that considerable advancement and improvement have been made through the compromise devices mentioned above, the results of which have supplemented the limited progress under the Public Utility Act of 1935. Perhaps the creation of more new organizations and new laws will bring forth similar and more effective devices in the future to accomplish sound regional integration of operating electric properties.

VITA

Gordon Carroll Losee was born in Hebron, Illinois, on December 11, 1910. He received his elementary and secondary education in the public schools of Hebron, Illinois. In September, 1927, he entered the University of Illinois. He has received two academic degrees from the University of Illinois: Bachelor of Science from the College of Commerce, June, 1931, Master of Science in Economics, August, 1936, part of which graduate work was taken in Summer Session in the summers of 1934,1935, and 1936. During the academic years 1936-37, 1937-38, 1938-39, and 1939-40, he was enrolled in the Graduate School of the University of Illinois. During the past four years he has held an appointment as Assistant, teaching in the Department of Economics, University of Illinois. He received the degree of Doctor of Philosophy in Economics in October, 1940. During the years 1939-40 this study was in preparation.